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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

NELSON, ALECIA DIANE

ART UNIT PAPER NUMBER

2629

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/651,919

Applicant(s)

RAFII ET AL.

Examiner

Alecia D. Nelson

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 August 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 2/5/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. ***Claims 1, 3-5, 19, 21, 22, 24-26, 40, and 42*** are rejected under 35 U.S.C. 102(b) as being anticipated by Segan (U.S. Patent No. 6,252,598).

With reference to **claims 1 and 22**, Segan teaches a system (01) to enable a user to interact with a virtual input device (24) using a user-controlled object, the system comprising; a single sensor system (20) that acquires data representing a single image at a given time (see column 2, lines 58-62), from which three-dimensional coordinate information (see column 2, lines 36-40) of a relevant position of at least a portion of said user-controlled object may be determined such that a location defined on the virtual input device contacted by the user control object is identifiable (see abstract); and a processor system to determine whether a portion of the user control object contacted a location defined on the virtual input device, and if contacted to determine what function of the virtual input device is associated with the location, wherein the system determines if, when in time, and where interaction between the user-controlled object and the virtual input device occurs (see steps 1-10; Figure 2).

With reference to **claims 3 and 24**, Segan teaches that the single sensor system acquires the data using time-of-flight from the single sensor system to a portion of the user-controlled object (see column 2, lines 28-30).

With reference to **claims 4, 5, 25, and 26**, Segan teaches that the device further includes feedback to guide the user in positioning the user controlled object with respect to the virtual input device, the feedback including audible and/or visual feedback in the form of a “click” or highlighting a selection (see column 3, lines 3-12).

With reference to **claims 19 and 40**, Segan teaches that the single sensor system captures data in frames representing a single image at a given time from which data said three-dimensional coordinate information of a relevant position of at least a portion of the user-controlled object may be determined with respect to the virtual input device from multiple data frames captured at substantially the same time such that a location defined on the virtual input device contacted by the user-controlled object is identifiable (see column 2, lines 58-62).

With reference to **claims 21 and 42**, Segan teaches that the virtual input device includes a virtual keyboard (see column 6, lines 7-13); and the user-controlled object includes at least a portion of a hand of the user (see column 2, lines 36-46).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. ***Claims 2, 20, 23, and 41*** are rejected under 35 U.S.C. 103(a) as being unpatentable over Segan as applied to ***claims 1, 3-5, 19, 21, 22, 24-26, 40, and 42*** above and further in view of Carau (U.S. Patent No. 6,266,048)

With reference to ***claims 2 and 23***, Segan teaches all that is required as explained above including a means for making available to a companion system (personal computer) information commensurate with contact location determined by the processor system, wherein by controlling the user controlled object a user interacts with the virtual input device to provide information to the companion system (see Figure 2).

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However, Segan fails to teach that the device is for use with a portable device as recited in the claims.

Carau teaches an apparatus for a virtual display/keyboard for a PDA (see abstract) wherein by controlling the user controlled object a user interacts with the virtual input device to provide information to the companion system (See column 1, line 2, column 2, line 44).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the usage of a portable device, similar to that which is taught by Carau as the device which is capable of receiving input from a virtual input device similar to that which is taught by Segan in order to thereby provide a reasonably sized user input area for a device which would normally not have the area on the device itself.

With reference to **claims 20 and 41**, Segan teaches that processing tasks associated with operation of the system may be carried out at least in part by a processor associated with the companion system (see steps 1-10; Figure 2).

6. **Claims 6-11, 14-18, 27-32, and 35-39** are rejected under 35 U.S.C. 103(a) as being unpatentable over Segan as applied to **claims 1, 3-5, 19, 21, 22, 24-26, 40, and 42** above, and further in view of Kroth (U.S. Patent No. 5,767,842).

With reference to **claims 6 and 27**, Segan fails to teach that the virtual input device includes a language routine as described in the claim.

Kroth teaches a virtual input device (3) including a language routine that selects most likely user-intended keystrokes as the user interacts with the keyboard based upon knowledge of language used by the user, based upon recent history of key characters on the keyboard already contracted by the user-controlled object, and based upon knowledge of approximate current proximity of the user controlled to the keyboard (see column 5, line 36-column 6, line 6).

Therefore it would have been obvious to allow for a language routine as taught by Kroth in a device similar to that which is taught by Segan in order to allow for easier and faster input for the user.

With reference to **claims 7 and 28**, neither Segan nor Kroth teaches that the input device is dynamically uer-selectable between a keyboard and a digitizer tablet.

However the examiner takes Official Notice in that the usage of a keyboard and a digitizer tablet are well known to be interchangeable with one another. Also it is well known in the art to allow for a digitizer tablet to be used as a keyboard.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the virtual input device to take on the form of a digitizer tablet as well as a keyboard in order to provide the user with alternative methods of inputting data.

With reference to **claims 8, 9, 29, and 30**, while Segan teaches all that is required as explained above there fails to be any disclosure of calculating velocity of the user controlled object as recited in the claim.

Kroth teaches a means for calculating velocity of the user controlled object at least when proximate the virtual input device; wherein a contact interaction by the user controlled object with the virtual input device is adjudicated to occur only if a minimum threshold velocity is exceeded; wherein the minimum threshold velocity is user-controlled such that reliability of user interaction with the virtual input device is customizable to the user (see column 7, lines 33-39), and instances of false interactions are reduced (see column 4, line 59-column 5, line 35).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the virtual input device to calculate velocity, similar to that which is taught by Kroth, in a device similar to that which is described by Segan in order to allow the user with an input device wherein ambiguities due to simultaneously moving fingers can be resolved.

With reference to **claims 10, 11, 31, and 32**, Segan fails to teach the usage of a training means as recited in the claims as well as the training including at least one means for providing either visual or acoustic feedback.

However, the examiner takes Official Notice in that the usage of training aids in computer devices are well known and common for usage in the art.

Further Kroth teaches the usage of providing the user with visual and/or acoustic feedback (see column 6, lines 50-51).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow usage of a training aid similar to that which is known in the art for a device similar to that which is taught by the combination of Segan and Kroth in order to provide the user with a quick reference as to how to operate the device when the paper instructions are not available.

With reference to **claims 14 and 35**, Segan fails to teach that the processor system can discern user gestures as a form of user interaction with the virtual input device.

Kroth teaches that the processor system can discern user gestures as a form of user interaction with the virtual input device (see column 4, lines 25-34).

Therefore it would have been obvious to allow for the usage of a processor to detect hand gestures as taught by Kroth in a system similar to that which is taught by Segan in order to provided additional input to the system for navigating or controlling the display.

With reference to **claims 15-17 and 36-38**, Segan fails to teach providing a user-viewable image of the virtual input device generated by an optical system including at least one diffractive optical element.

Kroth teaches providing a user-viewable image of the virtual input device generated by an optical system including at least one diffractive optical element (see column 4, lines 45-52), wherein a display device is known to include an optical element.

Therefore it would have been obvious to one having ordinary skill in the art to allow a user-viewable image as taught by Kroth in a device similar to that which is taught by Segan in order to thereby provide the user with a view of the keystrokes of the virtual keyboard for accuracy.

With reference to **claims 18 and 39**, neither Segan nor Kroth teaches the usage of a power consumption means.

However, the examiner takes Official Notice in that the usage of a power consumption means is well known in the art of portable computers. Most portable computers have the claimed power consumption means, which monitors user input to the device. Once user input has not been received for a set amount of time, the device goes into a lower power mode, but disabling the display and or backlight illuminating the display and or input keys of the device.

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow the usage of a power consumption means as well known in the art with a device similar to that which is taught by the combination of Segan and Kroth in order to increase the battery life of the device.

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7. **Claims 12, 13, 33, and 34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Segan as applied to **claims 1, 3-5, 19, 21, 22, 24-26, 40, and 42** above, and further in view of Carroll et al. (U.S. Patent No. 6,121,960).

With reference to **claims 12, 13, 33, and 34**, Segan fails to teach the usage of a tool to enable the user to generate a user-customized template of the virtual input device wherein the tool enables the user to assign a virtual input device function to a given location defined on the virtual input device.

Carroll et al. teaches a virtual input device wherein the user is capable of generating a user-customized template of the virtual input device (see column 9, lines 17-47), wherein the user is capable of assigning a virtual input device function to a given location defined on the virtual input device column 9, line 47-column 10, line 15).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention to allow for the usage of a user-customized template, similar to that which is taught by Carroll et al. in a device similar to that which is taught by Segan in order to provide the user with layouts that coincide with the operation being carried out, thereby providing the user with an easier method of inputting data.

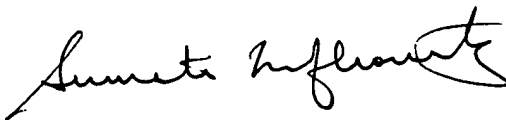
Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alecia D. Nelson whose telephone number is 571-272-7771. The examiner can normally be reached on Monday-Friday 9:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sumati Lefkowitz can be reached on 571-272-3638. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

adn/ADN
March 2, 2006



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SUPERVISORY PATENT EXAMINER